

REMARKS

Claims 1-9 are all the claims pending in the application. Claims 1-7 are rejected. Claim 1 is amended. The amendment to claim 1 is clearly supported by the description at page 6, lines 23-28 of the original specification. Claims 8 and 9 remain withdrawn from consideration.

Claim Rejections 35 U.S.C. § 102(b)

Claims 1 and 3-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Saito (US 6579634). This rejection is traversed for at least the following reasons.

Claim 1

According to the present invention recited in the amended claim 1, the protection layer, is an amorphous layer, and the protection layer serves to reduce a grain size of an underlayer to be formed on the disk substrate, the underlayer controlling grain and orientation of a perpendicular magnetic recording layer to be formed on the underlayer. This is a feature of the present invention and is not disclosed or suggested in the prior art.

Saito

The Examiner asserts that Saito teaches a disk substrate having base and a protection layer on a soft magnetic layer surface and points to any of Figs. 1(a), 2-5(a), 7(a) and 8(e) for an illustration of a protection layer, 4, on a soft magnetic layer, 3, with specific reference to col. 4, lns 66 - col. 5, ln 5; col. 5, lns 43-48, and col. 7, lns 30-33.

In Saito's Fig. 2, the protection layer 4 is formed on the soft magnetic layer. Specifically, the hard magnetic layer 8 is formed below the soft magnetic layer 7. The isolating component 6 is formed between these layers 7, 8. The protection layer 4 is formed on the layers 6, 7 and 8.

With this structure, the soft magnetic layer 7 does not serve to form a magnetic circuit. Furthermore, the recording layer is not to be formed on the protection layer 4. Therefore, the protection layer 4 is not required to be amorphous. Accordingly, the protection layer 4 does not have the function of the present invention, i.e., "the protection layer serves to reduce a grain size of an underlayer to be formed on the disk substrate".

Claims 3-7

These claims would be patentable for reasons given with respect to claim 1.

Claims 1, 3-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Futamoto et al (US 6403203). This rejection is traversed for at least the following reasons.

Again, the invention of claim 1 is limited to protection layer that is an amorphous layer, and the protection layer serves to reduce a grain size of an underlayer, the underlayer controlling grain and orientation of a perpendicular magnetic recording layer to be formed on the underlayer.

Futamoto et al

The Examiner asserts that Futamoto et al teaches a disk substrate with a protection layer on a soft magnetic layer surface, as illustrated at any of Figs. 7 to 10, with a disk substrate with a soft magnetic layer, 72, and a protection layer, 15, on the soft magnetic layer surface. Reference also is made to the disclosure at col. 8, lns 29-68; col. 9, lns 9-14; col. 10 lns 3 and 4; col. 14, lns 25-29.

In Futamoto et al, the protection layer is formed on the soft magnetic layer. However, as shown in Fig.7, the perpendicular magnetic recording layer 72 is formed below the soft magnetic layer 72. With this structure, the soft magnetic layer 72 does not serve to form the magnetic circuit. Furthermore, the recording layer is not to be formed on the protection layer. Therefore, the protection layer is not required to be amorphous. Accordingly, the protection layer does not have the structure (amorphous) or function of the present invention, i.e., "the protection layer serves to reduce a grain size of an underlayer to be formed on the disk substrate".

8. Claims 1 and 3-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Nishikawa et al (US 2003/0099867). This rejection is traversed for at least the following reasons.

The Examiner asserts that Nishikawa et al teaches a disk substrate with a protection layer on a soft magnetic layer surface, at ¶ [0043], [0055]. The Examiner notes that

perpendicular recording media is listed in the claim preamble. The Examiner has not treated the preamble as an article limitation since the original claims do not set forth the structural limitation for a perpendicular media use. This has been treated as merely an intended use and given no weight. *In re Stencel*, 4USPQ2d 1071.

Applicants amended claim 1 now places the preamble limitations into the body of the claim, and these limitations clearly distinguish over Nishikawa et al.

Claims 3-5 would be patentable over Nishikawa et al for reasons given with respect to claim 1.

Claim Rejections - 35 U.S.C. § 103

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over any of Saito or Futamoto et al as applied to claims 1 and 3-7 above, and further in view of either Honda et al (US 5851643-previously cited) or Tanahashi et al (US 6511761-previously cited). This rejection is traversed for at least the following reasons.

The Examiner asserts that each of Saito and Futamoto et al teach the requirements of the rejected claim except specifying an ordinary, amorphous carbon protection layer. However, the Examiner asserts that Honda et al or Tanahashi et al teach that ordinary, amorphous carbon is well known in the recording art. The Examiner references in Honda et al the disclosure of an ordinary carbon layer without crystallization at col. 17, ln 43 - col. 22, ln 60. The Examiner also notes that Honda et al also teaches texture anisotropy at col. 1 ln 66 to col. 2 ln 2 in perpendicular recording media as disclosed at col. 2, lns 43-55. The Examiner references in Tanahashi et al the teaching of an ordinary carbon layer without crystallization, at col. 3, ln 47 - col. 4, ln 55. A teaching of texture anisotropy is found at col. 8 ln 33 and 34 as well as col. 9, ln 2, and a teaching of perpendicular recording at col. 8, lns 63-65.

The Examiner concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to adopt the amorphous carbon as shown by Honda et al or Tanahashi et al into recording media of any of Saito, or Futamoto et al for the purpose of providing protection in storage magnetic media. The Examiner asserts that one skilled in the art

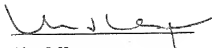
would have been motivated to adopt Honda et al or Tanaha et al with the expectation of decreasing the recording media noise Honda et al or Tanahashi et al, based on the goals in Honda et al (col. 2, lns 18-26) or Tanahashi et al (col. 1, lns 12-20).

The cited references disclose the amorphous protection layer. However, as described in Tanahashi, the protection layer is formed for the magnetic layer and does not relate to the magnetic anisotropy of the texture formed on the substrate. Thus, the claim would be patentable over the combination of references cited by the Examiner. Moreover, neither Honda et al or Tanahashi et al remedy the deficiencies of Saito or Futamoto, as asserted above.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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